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REMARKS

This application has been carefully reviewed in light of the Office Action dated October 31, 2003 (Paper No. 15). Claims 49 to 62 and 68 to 88 are presented for examination, of which Claims 49, 52, 55, 58, 61, 62, 84, 85 and 86 are independent. Entry of the above amendments and further examination are respectfully requested.

Claims 49 to 62 and 68 to 88 were rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 6,243,093 (Czerwinski). Reconsideration and withdrawal of the rejections are respectfully requested.

The present invention relates to displaying relationships between sets of data. The present invention utilizes similarity values that indicate the similarity between the sets of data. One aspect of the present invention lies in controlling the display to display representations of the sets of data, wherein the sets of data are physically separated in accordance with the similarity values. Another aspect of the present invention lies in displaying links between the representations in accordance with the similarity values. In this way, a user can easily identify what sets of data are similar or dissimilar, based on their separation or based on the types of links used.

With specific reference to the claims, independent Claim 49 recites a data display apparatus for displaying the relationships between sets of data. The display apparatus comprises data receiving means for receiving sets of data and similarity values for similarity between the sets of data, and display control means for controlling display means to display representations for the sets of data by physically separating the sets of

data in accordance with the similarity values and to display links between the representations in accordance with the similarity values.

Independent Claims 52 and 84 are method and apparatus claims, respectively, that correspond generally to independent Claim 49.

The applied art is not seen to disclose or suggest the features of independent Claims 49, 52 and 84, and in particular, is not seen to disclose or suggest at least the features of controlling display means to display representations for the sets of data by physically separating the sets of data in accordance with the similarity values and to display links between the representations in accordance with the similarity values.

Czerwinski relates to a graphical user interface in which object thumbnails are rendered on a simulated three-dimensional surface. The objects can be manipulated by a user on the simulated three-dimensional surface with the use of a two-dimensional input device, such as a mouse. Czerwinski further teaches that the object thumbnails can be clustered when they are arranged close to each other by the user. In another mode, Czerwinski teaches the use of a matching algorithm to determine whether certain objects are related. Czerwinski teaches the use of visual indicators, such as colored halos around related objects, to show the relationship between objects.

The Office Action takes the position that Czerwinski teaches the previously-claimed feature of controlling display means to display representations for the sets of data separated in accordance with the similarity values. Applicant respectfully disagrees, since Czerwinski is not seen to teach or suggest that representations for sets of data are

physically separated in accordance with their similarity values. In this regard, independent Claims 49, 52 and 84 have been amended to clarify this feature.

Czerwinski teaches two representation modes in which the object thumbnails can be displayed. One mode utilizes a proximity cluster determination process 268 to cluster object thumbnails based on proximity (column 20, lines 15-22). Czerwinski teaches that this representation mode is different from matching performed by the implicit query process 264, in that the proximity cluster determination process 268 is only concerned with where a user has placed an object (column 20, lines 30-35). In other words, Czerwinski's proximity clustering is only based on a particular user's idiosyncratic arrangement of the object thumbnails; the thumbnails themselves may be dissimilar in terms of subject matter, keywords, or content of the objects to which they refer. Thus, Czerwinski's proximity clustering is not based on similarity values.

In another representation mode, Czerwinski teaches the use of an implicit query process 264 (column 18, lines 8-15). This process utilizes matching algorithms or heuristics based on stored topic, keywords, or contents of the thumbnail object to determine objects that are related to a certain "active" object (column 18, lines 10-17). The degree to which objects match, as determined by implicit query process 264, is depicted with the use of visual indicators (column 18, lines 50-65). Czerwinski teaches the following visual indicators: horizontal bar meters (Figs. 11A, 11D, 11E, 11I, 11J), segmented horizontal bar meters (Fig. 11B), horizontal slope bar meters (Fig. 11C), pie meters (Fig. 11F), dial meters (Fig. 11G), numbered tabs (Fig. 11H), coloring schemes (Figs. 11K, 12D-12F), heigh indicators (Figs. 11L-11M), or vertical bar meters (Fig. 11N).

In addition, Czerwinski teaches that objects that do not meet a predetermined match threshold can be displayed as being dissimilar to an "active" object. Czerwinski teaches that these dissimilar objects can be darkened (Fig. 11O), blurred (Fig. 11P), made translucent (Fig. 11Q), colored by a gradient function (Fig. 11R-11S), skewed (Fig. 11T), or have a corner folded (Fig. 11U).

While Czerwinski teaches the use of the above-mentioned visual indicators to show the degree to which object thumbnails match or do not match an active object, Czerwinski makes no mention of controlling display means to display representations for the sets of data by physically separating the sets of data in accordance with similarity values. In fact, the only process in which Czerwinski mentions that object thumbnails can be grouped by proximity (i.e. physically separated), is the proximity cluster determination process 268. However, as explained above, this process does not make use of Czerwinski's matching algorithms, nor does it use any similarity values. In fact, Czerwinski expressly teaches that "the proximity cluster determination process 268 is only concerned with where a user has placed an object" (column 20, lines 33-35). Therefore, Czerwinski is not seen to teach or suggest controlling display means to display representations for the sets of data separated in accordance with the similarity values.

Furthermore, Czerwinski is not seen to teach or suggest displaying links between the representations in accordance with the similarity values. As discussed above, Czerwinski discusses several visual indicators that may be used to show the degree to which object thumbnails match an "active" object in accordance with the output of a matching algorithm. However, Czerwinski makes no mention of the use of links as visual

indicators of similarity. Czerwinski does teach the use of links as historical markers of previously proximately located objects (column 21, lines 1-10, Figs. 12E-12F). However, as discussed above, the proximity determination process 268 of Czerwinski only clusters objects in response to user input, and does not cluster based on the output of matching algorithms or similarity values.

As such, Czerwinski is not seen to teach or suggest controlling display means to display representations for the sets of data by physically separating the sets of data in accordance with the similarity values and to display links between the representations in accordance with the similarity values. Accordingly, based on the foregoing remarks, independent Claims 49, 52 and 84 are believed to be allowable over the applied references.

In another aspect of the invention, the present invention utilizes the feature of calculating an arrangement of representations for the sets of data on the display means so that the arrangement physically spaces the representations according to similarity values. The invention controls the display means to display the arrangement of the representations that have been calculated.

With specific reference to the claims, independent Claim 55 recites a data display apparatus for displaying the relationships between sets of data. The data display apparatus comprises data receiving means for receiving sets of data and similarity values for similarity between the sets of data. The apparatus further comprises arrangement calculation means for calculating an arrangement of representations for the sets of data on display means, in which arrangement the representations are physically spaced according to

the similarity values. The apparatus also comprises display control means for controlling the display means to display the arrangement of the representations, and user selection means for allowing a user to select and move one of the representations. The arrangement calculation means is operable to recalculate the arrangement of the representations following movement of one of the representations.

Independent Claims 58, 61, 62, 85 and 86 are method and apparatus claims, respectively, that correspond generally to independent Claim 55. In particular, each of independent Claims 55, 58, 61, 62, 85 and 86 contain the features of calculating arrangements of representations which are physically spaced based on similarity values and controlling display means to display the representations.

The applied art is not seen to disclose or suggest the features of independent Claims 55, 58, 61, 62, 85 and 86, and in particular, is not seen to disclose or suggest at least the features of calculating an arrangement of representations which are physically spaced according to the similarity values and controlling the display means to display the arrangement of representations.

As discussed above, Czerwinski teaches that object thumbnails can be diplayed in clusters based on user preference, or can be displayed with visual indicators based on the output of a matching algorithm. Czerwinski is not seen to teach or suggest controlling a display to physically space object thumbnails based on their similarity values. In addition, Czerwinski is not seen to teach or suggest calculating an arrangement of object thumbnails, in which the arrangement is physically spaced based on their similarity values.

As such, Czerwinski is not seen to teach or suggest calculating an arrangement of representations which are physically spaced according to the similarity values and controlling the display means to display the arrangement of representations. Accordingly, based on the foregoing remarks, independent Claims 55, 58, 61, 62, 85 and 86 are believed to be allowable over the applied references.

The other claims in the application are each dependent from the independent claims and are believed to be allowable over the applied reference for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

Finally, though not applied to the claims, the Office Action also indicated that U.S. Patent 6,211,876 (Ackerman) teaches the claimed matter of the present invention. Applicant respectfully invites the Examiner to enter a rejection over Ackerman if he believes that one is warranted. For his part, Applicant does not believe that a rejection is warranted, as explained in more detail below.

Ackerman relates to a method and system for displaying icons representing information items stored in a database. Specifically, Ackerman concerns providing access to an experience journal which includes unstructured text items relating to a topic search. Ackerman suggests that icons representing text objects may be displayed on a display relative to one another such that the differences between the icons are representative of determined similarities among the unstructured text items. (Ackerman, column 4, lines 53-67). However, Ackerman is not seen to disclose or suggest controlling display means to

display links between the representations in accordance with similarity values as required by indpendent Claims 49, 52, and 84.

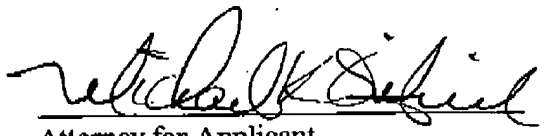
Furthermore, Ackerman is not seen to teach or suggest that the arrangement of representations can be recalculated following the movement of one the representations as required by independent Claims 55, 58 and 85. Also, Ackerman is not seen to teach or suggest iteratively calculating separation of displayed representations from starting separations to target separations corresponding to similarity values and controlling display means to display the representations at time sequential states while the separation is being iteratively calculated, as required by independent Claims 61, 62 and 86. As such, Ackerman is not seen to teach the claimed matter of the present invention.

An Information Disclosure Statement dated March 31, 2004 has been filed. Consideration of the art cited therein is respectfully requested.

No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited.

Applicant's undersigned attorney may be reached in our Costa Mesa, California office by telephone at (949) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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